

CLAIMS

What is claimed is:

1. An optical submount comprising:
 - a) a substrate;
 - b) a trench in the substrate for holding an optoelectronic device on-edge;
 - c) an electrical connection pit adjoining the trench; and
 - d) a metallization layer in the electrical connection pit.
2. The optical submount of claim 1 further comprising a groove in the substrate adjoining the trench.
3. The optical submount of claim 2 further comprising an optical fiber disposed in the groove.
4. The optical submount of claim 2 wherein the groove is adjacent to the electrical connection pit.
5. The optical submount of claim 2 wherein the groove is perpendicular to the trench.
6. The optical submount of claim 2 wherein the groove and electrical connection pit are disposed on opposite sides of the trench.
7. The optical submount of claim 1 further comprising an optoelectronic device disposed in the trench.

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8. The optical submount of claim 7 wherein the optoelectronic device includes a contact pad, and the contact pad is soldered to the metallization layer.
9. The optical submount of claim 7 further comprising a groove in the submount aligned with an active area of the optoelectronic device.
10. The optical submount of claim 1 comprising two electrical connection pits.
11. The optical submount of claim 10 wherein the two electrical connection pits have different depths.
12. The optical submount of claim 10 wherein the two electrical connections pits are disposed on the same side of the trench.
13. The optical submount of claim 1 wherein the electrical connection pit is at least partially filled with solder.
14. The optical submount of claim 1 wherein the trench is a trench formed by a dicing saw.
15. The optical submount of claim 1 wherein the trench is a trench formed by directional dry etching.
16. The optical submount of claim 1 wherein the substrate comprises <100> silicon, and the electrical connection pit is an anisotropically wet etched pit.
17. The optical submount of claim 1 further comprising a lid disposed over the substrate.

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18. The optical submount of claim 1 further comprising an optical waveguide disposed on the substrate, and terminating at the trench.
19. The optical submount of claim 1 wherein the trench does not extend to an edge of the substrate.
20. An optical device, comprising:
 - a) a substrate;
 - b) a trench in the substrate;
 - c) an electrical connection pit adjoining the trench;
 - d) a metallization layer in the electrical connection pit; and
 - e) an optoelectronic device disposed on-edge in the trench, wherein the optoelectronic device has a contact pad soldered to the metallization layer.
21. The optical submount of claim 20 further comprising a groove in the substrate adjoining the trench.
22. The optical submount of claim 21 further comprising an optical fiber disposed in the groove.
23. The optical submount of claim 21 wherein the groove is perpendicular to the trench.
24. The optical submount of claim 21 wherein the groove and electrical connection pit are disposed on opposite sides of the trench.
25. The optical device of claim 21 wherein the groove is aligned with an active area of the optoelectronic device.

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26. The optical submount of claim 20 wherein the trench is a trench formed by a dicing saw.
27. The optical submount of claim 20 wherein the trench is a trench formed by directional dry etching.
28. The optical submount of claim 20 wherein the substrate comprises <100> silicon, and the electrical connection pit is an anisotropically wet etched pit.
29. The optical submount of claim 20 further comprising a lid disposed over the substrate.
30. The optical submount of claim 20 further comprising an optical waveguide disposed on the substrate, and terminating at the trench.
31. The optical submount of claim 20 wherein the trench does not extend to an edge of the substrate.

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